

REMARKS

Reconsideration of this application is requested in view of the amendments to the claims and the remarks presented herein.

The claims in the application are claims 1 to 14, no other claims having been presented.

Applicant is submitting herewith new copies of the drawings and it is believed that they have proper line quality and lack clarity. It is requested that the drawings be submitted to the Official Draftsman for review.

Claims 1 to 9 were rejected under 35 USC 112 as being indefinite. The Examiner objected to claim 1 and the use of the term “can be” and “the opening is passed in one go ambient air” as being awkward and objected to the word “characterized” in claim 2.

Applicant respectfully traverses this ground of rejection since the amended claims are believed to properly define the invention. The term “can be” has been changed to “are” as suggested by the Examiner and the expression “in one go” has been changed to “in one stroke”. The term “characterized” has been removed from claim 2. Therefore, the amended claims are believed to properly define the invention and withdrawal of this ground of rejection is requested.

All the claims were rejected under 35 USC 103 as being obvious over the '814 patent taken in view of the Arai patent. The Examiner states that the '819 reference discloses a vacuum holding device having a vacuum holding device which is detachable from a vacuum source (26), a vacuum chamber (12), a valve (66), a means for detaching a vacuum (Fig. 1), a piston (28) and piston suction pipe (75). The Examiner concedes that the '819 reference does not disclose a rubber material for a seal but cites Arai as disclosing a vacuum device having a rubber seal (1) used to create an air tight vacuum. The Examiner deems it would have been obvious to modify the '819 device by providing a vacuum seal using rubber as taught by Arai.

Applicant respectfully traverses these grounds of rejection since the combination of the prior art the Examiner has made for the benefit of Applicant's disclosure would not suggest Applicant's apparatus to one skilled in the art. The suction device of the '819 reference concerns a venom pump consisting of a vacuum pump (10) and a suction cup (12) wherein the suction orifice (18) of the pump (10) is provided with a normally closed shutter (48) which opens upon connection (58) with the external chamber (12). The piston of (1) is lockable in its working position thereby allowing the user to apply a defined depression within the internal space (46) of the pump. The defined vacuum in the internal space (46) of the pump is afterwards put into a working communication with the external chamber (12) to apply a defined vacuum to the upper surface of the skin without which the piston is moved.

The suction device of the '819 patent functions very different to Applicant's device. First, a predefined vacuum is generated in the cylinder (see recesses 96 and 98 in the piston rod 24 for interlocking with the inner pump orifice 22). Then the vacuum device is attached to the suction cup but only after the vacuum is generated but not before, as in Applicant's invention. A venom pump can only apply very moderate vacuum to the skin and cannot be compared to the holding device of Applicant's invention wherein a strong and sudden vacuum is required.

Applicant's apparatus, as defined in claim 1, differs from the '819 reference by at least three features:

- 1) the '819 patent does not disclose a seal made of a rubber material.
- 2) the '819 patent has a normally closed shutter which opens only upon connection with the external chamber and the valve is not actuated by the pressure differences between the suction cup and the piston.

The two apparatuses are for very different purposes. One is to create a minor vacuum on the skin and if one had a strong vacuum as in Applicant's invention, the pain caused by the sudden vacuum would be extreme.

The Arai patent does not overcome the deficiencies of the primary reference. The Arai patent discloses a sucker for lifting glass plates wherein the sucker body carries a

manual non-detachable vacuum pump, a sensor for detecting the degree of vacuum and a sound generator which is turned on when the sensor detects a loss of vacuum of a predetermined degree. The manual vacuum pump 6 comprises a cylinder 11 extending between the support plates 4 and a head 12 secured to one end of the cylinder 11, a control member 13 inserted into the cylinder 11 from the other end, a piston 14 having a rod 15 coupled to the control member 13 and a spring 17 bearing on a partitioning wall 16 in a compressed state. The piston 14 is normally biased by the spring 17 toward the retracted position.

The piston 14 is adapted to allow compressed air to escape to the rear when it is moving forward while it is being pushed by the control member 13 to create a vacuum when moving rearward biased by the spring 17. The head 12 is provided with a passage 19 axially extending therethrough and a suction channel 20 communicating with a passage 19. A check valve 21 is provided on an end face of the head 12 which faces the interior of the cylinder 11 and to which the passage 19 opens and has the form of a rubber plate (see check valve 21 in Fig. 4).

By reciprocating the piston 14, a vacuum is produced in the cylinder 11 whereby the air and the suction recess 3 is drawn out through the check valve 21. In Arai, a reciprocating pump is used to produce a vacuum and a reciprocating cylinder pump generates a vacuum by compressing air that is released along the sealant around the upper end of the piston during the compression stroke to allow a vacuum to be generated when

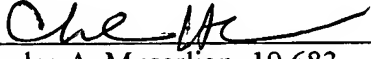
the piston is pulled to the upper end of the cylinder that bears an upper opening outside the piston pathway. This is very different to the working of Applicant's apparatus.

Arai in no way teaches the features 2 and 3 noted above which are also not disclosed in the '819 patent. The Examiner has not even referred to features 2 and 3 above and only argues the general skill in the art. The Examiner has not shown that one skilled in the art would derive features 2 and 3 above and Applicant vigorously traverses this.

The present invention comprises a suction cup and a detachable piston suction pipe (not a pump) with an opening at the end of the suction path to allow as much ambient air as possible to stream into the pipe in a single stroke when the opening is passed by the piston head when the piston head exits the pipe. This means that the inside of the suction pipe immediately reaches atmospheric pressure and the valve is pressed into its seat to tightly seal the vacuum inside the cup from the normal outside pressure now in the suction pipe and the suction pipe is removed after the first stroke. Applicant is submitting herewith a specimen of the claimed apparatus for the Examiner's convenience. Therefore, it is deemed that the combination of the prior art does not teach Applicant's invention in any form and withdrawal of this ground of rejection is requested.

In view of the amendments to the claims and the above remarks, it is believed that the claims clearly point out Applicant's patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,
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